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USDA ■ Forest Service

forest insect & disease management methods application group

2810 Chiles Rd. ■ Davis, Ca. 95616

October 1982 (14)

NEWSLETTER

GOODBYE DAVIS - HELLO FT. COLLINS

Forest Service Chief Max Peterson made the decision, in July of this year, to relocate MAG in Ft. Collins, Colorado. The relocation will permit greater day-to-day contact with groups such as the Resources Evaluation Techniques Project located at the Rocky Mountain Forest and Range Experiment Station, the USDA Ft. Collins Computer Center and Colorado State University. Additionally, Ft. Collins, with its geographic location, provides for easier access to the field and more efficient travel connections.

Office space has been obtained at Drake Executive Plaza, a new office complex on the south side of the city, approximately one mile from the Rocky Mountain Forest and Range Experiment Station headquarters. Our new address is:

Suite 350, Drake Executive Plaza
2625 Redwing Rd.
Ft. Collins, CO 80526

Our new phone numbers are:

FTS 323-5265
Comm'l 303-223-5025

Present plans are to activate the new office in October 1981. The existing Davis location will remain in operation until the end of December 1981, to phase out current projects. This Newsletter will be the last published from the Davis location.

The pesticide application activities will remain at the Davis location.



First van load to Ft. Collins

SAMPLING ALLOCATIONS FOR MOUNTAIN PINE BEETLE SURVEYS

In cooperation with the Pacific Southwest Forest and Range Experiment Station an evaluation of alternative sampling strategies for MPB loss surveys in lodgepole and Ponderosa pines has been completed. Data obtained from surveys conducted between 1976 and 1980 were used for this evaluation. Results are being summarized to provide a guide for future surveys. Factors considered in this evaluation were number of photo plots, number of photo plots for ground truth, number of subplots for ground truth, sampling error, and cost in terms of manpower required. Information obtained from this study can be used to determine sample size required and to achieve a specified sampling error when estimating losses from Mountain Pine Beetle.

WESTWIDE MOUNTAIN PINE BEETLE SURVEY UNDERWAY

A westwide inventory of mortality caused by the mountain pine beetle in lodgepole and ponderosa pine forests is underway. Purpose of this survey is to estimate current levels of tree mortality and volume loss by land ownership. The survey is the first attempt to provide statistical data with levels of precision in accordance with standards set by Level II of the Forest Insect and Disease Information System (FIDIS).

Forest Service Regions involved in the survey are the Northern Region (R-1), Missoula, Montana; Rocky Mountain Region (R-2), Denver, Colorado; Intermountain Region (R-4), Ogden, Utah; and the Pacific Northwest Region (R-6), Portland Oregon.

The Survey is a multistage probability proportional to size (PPS) design and involves aerial sketch mapping, large scale color aerial photography and ground sampling. Aerial photos were obtained with a Forest Service aircraft based at the Pacific Southwest Region (R-5) and by contract aircraft.

When completed, the survey will provide data on the location of infested areas by major landownership classes and estimates of numbers of trees killed and cubic foot volume loss for Oregon, Washington, Idaho, Montana, Wyoming and Utah. Final data should be available in January 1982.

AIRCRAFT NAVIGATION SYSTEM EVALUATED

As part of the westwide mountain pine beetle loss survey, an aircraft navigation system was evaluated for locating aerial photo plots. The system evaluated was the Global Navigation System GNS-2, a VLF/Omega Navigational System.

The system was installed in the Forest Service's Aero Commander based in the Pacific Southwest Region (R-5). This

aircraft was used to acquire aerial photos for a mountain pine beetle loss survey of Oregon and Washington and a special survey to risk-rate ponderosa pine stands on the Black Hills National Forest in South Dakota for hazard of mountain pine beetle infestation.

According to Jule Caylor, Remote Sensing Specialist for the Forest Service Pacific Southwest Region in San Francisco, who flew the photo missions, search time in navigating between photo plots is reduced but the system is not yet accurate enough to pinpoint plot locations. In the mountain pine beetle surveys of Oregon and Washington, flight time was estimated to be reduced from a projected 120 hours to 80 hours at a cost saving of \$7,000.

U-2 PHOTOGRAPHY OF A GYPSY MOTH OUTBREAK

In cooperation with the Morgantown FPM Field Office, of the Northeastern Area, MAG is investigating the use of high altitude panoramic aerial photography to detect and classify gypsy moth defoliation in central Pennsylvania and northeastern New Jersey. Photography was taken during peak defoliation from a U-2 aircraft with the IRIS II optical bar camera, an improved version of the KA80A camera. The color infrared frames covering a scan angle of 140° have been indexed on county road maps and their scales computed and averaged (1:32,500). Equal-area grids generated by the Geometronics staff of the Rocky Mountain Region in Denver, Colorado, will be used to classify defoliation. Photo interpretation to delineate infestation boundaries and stratify defoliation categories will begin this fall.

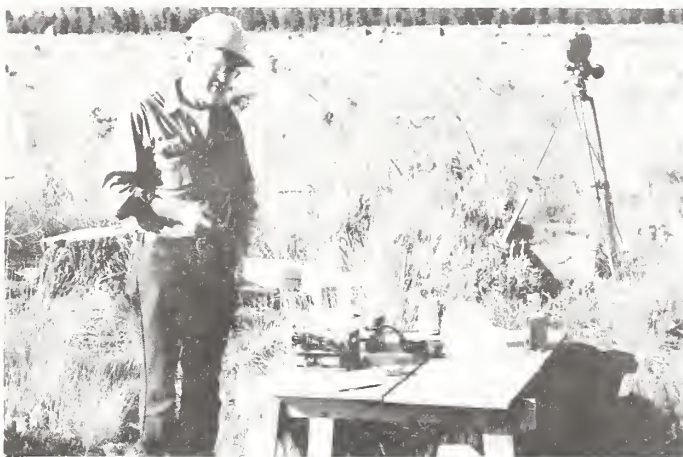
PANDORA MOTH PILOT PROJECT

The pandora moth, on occasion, is a serious defoliator of pines in the West. It becomes epidemic about once every 20 to 25 years. Therefore, a forest entomologist working in the west may encounter this pest once during his professional career.

During 1979 the pandora moth reached epidemic proportions on the North Kaibab Plateau in Arizona near the north rim of the Grand Canyon. FPM (R-3) conducted a pilot test against this insect using Orthene, in Spring 1981.



John Schmelik and Mark Mayberry of the Northern Region estimate spray deposit size during aircraft characterization trials on the Deerlodge NF in Montana



Bob Ekblad of MEDC with some new drift and deposit samplers

A variety of specialized assistance was provided by MAG on this project. Since the insect becomes epidemic at such infrequent intervals, virtually nothing is known about sampling the population. Bob Young, in collaboration with John Schmid of the Rocky Mountain Forest and Range Experiment Station, conducted some preliminary investigation on the distribution of larvae in infested stands to help develop a pre- and post-spray sampling strategy. In addition, Bill Ciesla (MAG) teamed up with Jule Caylor of the Pacific Southwest Region in San Francisco to obtain color infrared aerial photos of the spray blocks and surrounding stands before and after spraying to help determine the degree of foliage protection achieved by the spray. Preliminary results indicate that aerial photos can be used for detecting overall control effects.

Assistance in aircraft calibration and spray deposit assessment was provided by Jack Barry and Patti Kenney.



Dan Twardus of the Pacific Northwest Region (R-6) in Portland collects spray deposit cards and needle samples following spraying

WESTERN SPRUCE BUDWORM PILOT PROJECT COMPLETED

Pilot control projects designed to evaluate two commercial preparations of the bacterial insecticide Bacillus thuringiensis were conducted during June 1981 in the Northern Region (R-1) and Southwestern Region (R-3). The purpose of these projects was to evaluate Dipel 4L and Thuricide 16B for protecting relatively small acreages of high value Douglas-fir and true fir.

The projects were conducted in accordance with a common statistical design developed by a task force of Regional FPM and Research personnel. Jack Barry of MAG served as project coordinator.

Both projects were conducted as planned with a minimum of difficulty. Materials were applied with turbine powered agricultural aircraft which performed well in rugged mountainous terrain. Larval mortality is presently being analyzed and plans have been formalized to monitor egg mass numbers, defoliation, and 1982 larval density in treated and untreated areas through the next field season.

MAG specialists provided assistance in aircraft calibration and characterization and spray deposit assessment. The two projects provided an opportunity to evaluate spray deposits on Douglas-fir needles, the primary target for the aerial spray. This work is presently underway. In addition, Bob Ekblad of the Missoula Equipment Development Center (MEDC) conducted tests of several new drift and spray deposit samplers.

GRASSHOPPERS TREATED ON CALIFORNIA FORESTS

Brian Sturgess (R-5) and Jack Barry (MAG) monitored spray drift during an aerial spray project (Malathion) to control grasshoppers in a pine plantation on the Stanislaus NF, California. USDA-APHIS conducted the aerial operations while FPM personnel positioned spray deposit cards in the spray area and along a buffer strip surrounding a spring. MAG analyzed the data and summarized presented results. The low volume application with a Bell 204 was successful in reducing the grasshopper population with only minimal drift.



Bell 204 applies ULV malathion to grasshopper infected plantation

PESTICIDE APPLICATION TECHNOLOGY CONTRACTS UNDERWAY

Three contracts dealing with pesticide application technology are being administered by FPM/MAG. The field phase of a mountain spray drift study was completed in June. The contractor, ESC, is analyzing the data and a report will be issued in 1982. A second contract is with Ketron, Inc., and calls for development of a systematic approach to aerial application. The plan resulting from this contract will provide the framework for FPM direction in aerial application technology. A report will be released early in 1982. A third contract, with H.E. Cramer Co., of Salt Lake City, Utah, will provide technical assistance to FPM in the use of the Forest Service CBG Forest Spray Model. This contract continues through 1982. Jack Barry is the COR for these projects. John Wong is assisting with the Cramer contract.

MAG STAFF ACTIVITIES

Bill Ciesla presented a paper describing the application of panoramic aerial photography in Forest Pest Management at the Eighth Biennial Workshop on Color Aerial Photography in the Plant Sciences in Luray, Virginia.

John Wong gave a special lecture to the University of California, Berkeley, Entomology Department, in the application of the Douglas-fir tussock moth Stand-Outbreak Model as a pest management decisionmaking tool.

PERSONNEL CHANGES

With the transfer of MAG to Ft. Collins, the staffing of MAG will take on a substantial new look.

Bill Ciesla, Group Leader, and Eleanor Franz, Administrative Tech. will relocate in Ft. Collins and form the nucleus of the new unit. Bill will report in early October and Eleanor in January.

Patricia White, Computer Specialist, has accepted a similar position with the U.S. Army Presidio in San Francisco.

Jack Barry, National Pesticide Application Specialist, and Patricia Kenney, Biological Tech. will remain in Davis following the transfer of MAG to Ft. Collins. Jack will continue as National Pesticide Application Specialist attached to the Washington Office and Patti will work as Jack's technician.

Janet Zacharias has accepted a position as Secretary to the Director of Oceanographic Research at the U.S. Naval Post Graduate School in Monterey, California.

Sam Suznovitch, Clerk-typist has accepted a similar position with McClellan Air Force Base in Sacramento.

Jody Barnett, Editorial Assistant, will remain in the local area.

Bill White, Supervisory Entomologist with the Forest Service Rocky Mountain Region in Denver, Colorado, has accepted a position as Impact Survey Coordinator, thus becoming the first member of the new MAG-Ft. Collins team.

Bill Klein, Survey Systems Specialist, who recently returned from an Inter-governmental Personal Act (IPA) assignment to teach aerial photogrammetry at Stephen F. Austin State University, Nacogdoches, Texas, will retire. He plans to return to Stephen F. Austin in 1982 to resume his teaching duties.

John Wong, Mathematician, and Bob Young, Biometrician, have elected to remain in California and will seek alternative employment.

PUBLICATIONS

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